**DEPARTMENT OF TRANSPORTATION**
DIVISION OF ENGINEERING SERVICES
Office of Structural Materials
Quality Assurance and Source Inspection

Bay Area Branch
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Contract #: 04-0120F4
Cty: SF/ALA Rte: 80 PM: 13.2/13.9
File #: 1.28

# WELDING INSPECTION REPORT

**Resident Engineer:** Casey, William
**Address:** 333 Burma Road
**City:** Oakland, CA 94607

**Report No:** WIR-028175
**Date Inspected:** 13-Aug-2012

**Project Name:** SAS Superstructure
**Prime Contractor:** American Bridge/Fluor Enterprises, a JV
**Contractor:** American Bridge/Fluor Enterprises, a JV

**OSM Arrival Time:** 700
**OSM Departure Time:** 1930
**Location:** Job Site

**CWI Name:** Bernie Docena and Andrew Keach

**CWI Present:** ☑ Yes ☐ No

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| **Inspected CWI report:** | ☐ Yes | ☑ No | ☐ N/A | **Rod Oven in Use:** | ☑ Yes | ☐ No | ☐ N/A |
| **Electrode to specification:** | ☑ Yes | ☐ No | ☐ N/A | **Weld Procedures Followed:** | ☑ Yes | ☐ No | ☐ N/A |
| **Qualified Welders:** | ☑ Yes | ☐ No | ☐ N/A | **Verified Joint Fit-up:** | ☑ Yes | ☐ No | ☐ N/A |
| **Approved Drawings:** | ☑ Yes | ☐ No | ☐ N/A | **Approved WPS:** | ☑ Yes | ☐ No | ☐ N/A |
| | | | | **Delayed / Cancelled:** | ☐ Yes | ☑ No | ☐ N/A |

**Bridge No:** 34-0006
**Component:** SAS OBG

**Summary of Items Observed:**

Caltrans Office of Structural Material (OSM) Quality Assurance Inspector (QAI) Joselito Lizardo was present at the Self Anchored Suspension (SAS) job site as requested to perform observations on the welding of components for the San Francisco Oakland Bay Bridge (SFOBB) Project.

The QA observations on the following welding activities were turned over to fellow QA Scott Croft during the morning shift due to other assigned task given to this QA;

At OBG 13W-PP122.2-LS3 deck stiffener flange inside, QA randomly observed ABF/JV qualified welder Gue Wu Chen continuing to perform PJP groove welding root pass to fill pass on the deck stiffener flange T-joint. The welder was observed perform manual welding in the 4G (overhead) position utilizing a Shielded Metal Arc Welding (SMAW) with 3.2mm diameter E9018H4R electrode and implementing Caltrans approved Welding Procedure Specification (WPS) ABF-WPS-D15-1162-4. The stiffener flange plate has a bevel groove being welded PJP T-joint to the longitudinal stiffener. The plates were preheated to more than 200 degree Fahrenheit using Miller Proheat 35 Induction Heating System. During welding, ABF Quality Control (QC) Bernie Docena was noted monitoring the welding parameters of the welder with measured working current of 130 amperes on the 3.2mm E9018H4R.

At OBG 13W-PP121-W2 floor beam web inside, QA randomly observed ABF/JV qualified welder Mike Jimenez continuing to perform root pass back on the Complete Joint Penetration (CJP) butt joint. The welder was observed manually welding in the 3G (vertical) position utilizing a Shielded Metal Arc Welding (SMAW) with 3.2mm diameter E7018H4R electrode and implementing Caltrans approved Welding Procedure Specification (WPS)

ABF-WPS-D15-1040C Revision 1. The joint being welded has a single V-groove butt joint welded with steel backing bar. ABF Quality Control (QC) Bernie Docena was noted monitoring the welding parameters of the welder. QA randomly monitored the welding parameter with measured working current of 132 amperes on the 3. 2mm diameter E7018H4R electrode which appears in compliance to the WPS.

At OBG 13W-PP123.5-W2.8 BF1 drop-in floor beam inside, QA randomly observed ABF/JV qualified welder Lin E. Yun perform CJP groove first time welding repair. The welder was observed welding the floor beam flange butt joint in 4G (overhead) position utilizing Shielded Metal Arc Welding (SMAW) with 3.2mm diameter E7018H4R electrode implementing welding procedure ABF-WPS-D15-1001-Repairs. The repair excavation located at Y=270mm and having boat shape excavation dimensions of 70mm long x 20mm wide x 11mm deep was preheated to more than 150°F using propylene gas torch prior welding. During the shift, ABF QC Bernie Docena was noted monitoring the welder with measured working current of 128 amperes on the 3.2mm E7018H4R electrode.

Other welding related activities were at OBG 13W-PP123-W2.8 BF1 drop-in floor beam, where QA randomly observed ABF welder Richard Garcia perform air arc gouging/removing UT detected defects on welded flange splice butt joint. Other ABF personnel Chau Tran was also noted flush grinding the weld cover on welded K-plate at 13W-WK-SK1 and 13W-WK-WP1. Both activities were still continuing.

Tower Electro Slag Weld (ESW):

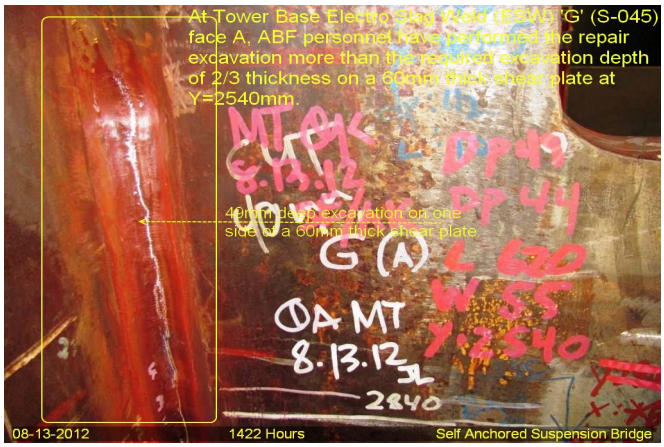
At Tower Base Electro Slag Weld (ESW), this QA observed ABF welder Han Wen Yu continuing to perform repair excavation at location ‘T’ face B (S-043) Y=8750mm due to Ultrasonic Testing (UT) detected defect. The repair excavation is being undertaken per Caltrans approved Request for Weld Repair RWR #201208-010. The welder was noted using carbon air arc gouging followed by grinding using a die grinder. The excavation was alternately gouged and ground then Magnetic Particle Testing (MT) tested by ABF QC Andrew Keach and this QA. The following excavation events were noted during the repair excavation;

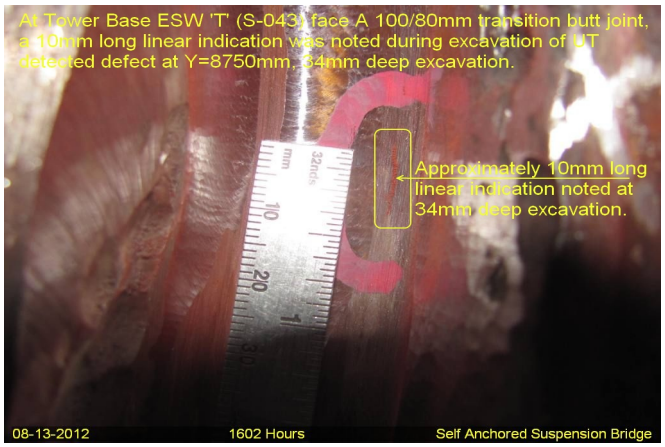
| ESW location | Y-dim | Depth of excavation | Noted defect |
|---|---|---|---|
| 1. ‘T’ (A) | 8750mm | 27mm | No linear indication noted. |
| 2. ‘T’ (A) | 8750mm | 31mm | No linear indication noted. |
| 3. ‘T’ (A) | 8750mm | 33mm | 10mm linear indication noted. |
| 4. ‘T’ (A) | 8750mm | >33mm . | Still in progress. To cont. tomorrow. |

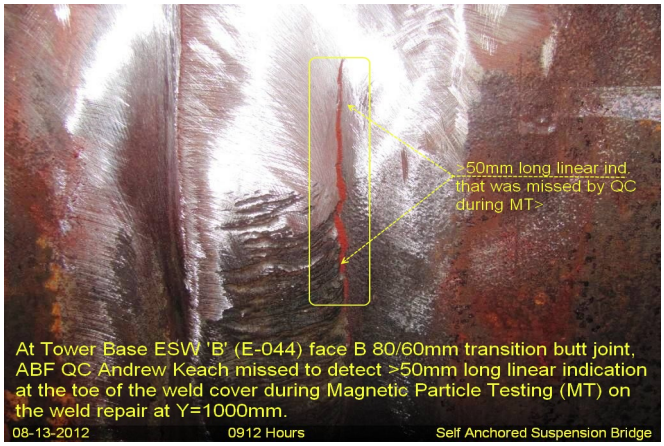
At Tower Base Electro Slag Weld (ESW), this QA observed ABF welder James Zhen continuing to perform repair excavation at location ‘G’ face A (S-043) Y=2540mm due to Ultrasonic Testing (UT) detected defect. The repair excavation is being undertaken without approved Request for Weld Repair (RWR). The welder was noted using a die grinder during excavation. The excavation was alternately ground then Magnetic Particle Testing (MT) tested by ABF QC Andrew Keach and this QA. The following excavation events were noted during the repair excavation;

| ESW location | Y-dim | Depth of excavation | Noted defect |
|---|---|---|---|
| 1. ‘G’ (A) | 2540mm | 44mm | 5 small linear indications noted. |
| 2. ‘G’ (A) | 2540mm | 49mm | All linear indications cleared. |

At the request of Quality Control Field Supervisor, Bonifacio Daquinag, QA has randomly verified the QC VT/MT on the repair welding. The QA verification was performed to verify that the welding and the VT/MT inspection performed by the QC inspector meet the requirements of the contract documents. At first, ABF QC Andrew Keach informed this QA that the Magnetic Particle Testing (MT) he just performed on the weld repair at ESW 'B' (E-044) face B location Y=1000mm was completed and acceptable and that he requested this QA to verify the test he just concluded. During the QA verification, it was noted that more than 50mm long linear indication at the toe of the repair weld cover was missed. This QA informed QC Andrew Keach to look again at the repair weld he just did due to presence of linear indication. QC did the MT again and confirmed QA's finding. QC then asked ABF personnel to grind the linear indication. After the completion of the grinding, ABF QC performed MT on the removal of the linear indication and noted no more indication. This QA verified the removal and noted the same. This incident was brought to the attention of Lead QA Danny Reyes but Mr. Reyes informed this QA to give first a warning to the QC involved and that the next time he will miss a MT indication, an Incident Report will be written against him.




**Summary of Conversations:**

No significant conversation ocurred today.

**Comments**

This report is for the purpose of determining conformance with the contract documents and is not for the purpose of making repair or fit for purpose recommendations. Should you require recommendations concerning repairs or remedial efforts please contact SMR Nina Choy 510-385-5910, who represents the Office of Structural Materials

for your project.

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|---|---|---|
| **Inspected By:** | Lizardo,Joselito | Quality Assurance Inspector |
| **Reviewed By:** | Levell,Bill | QA Reviewer |